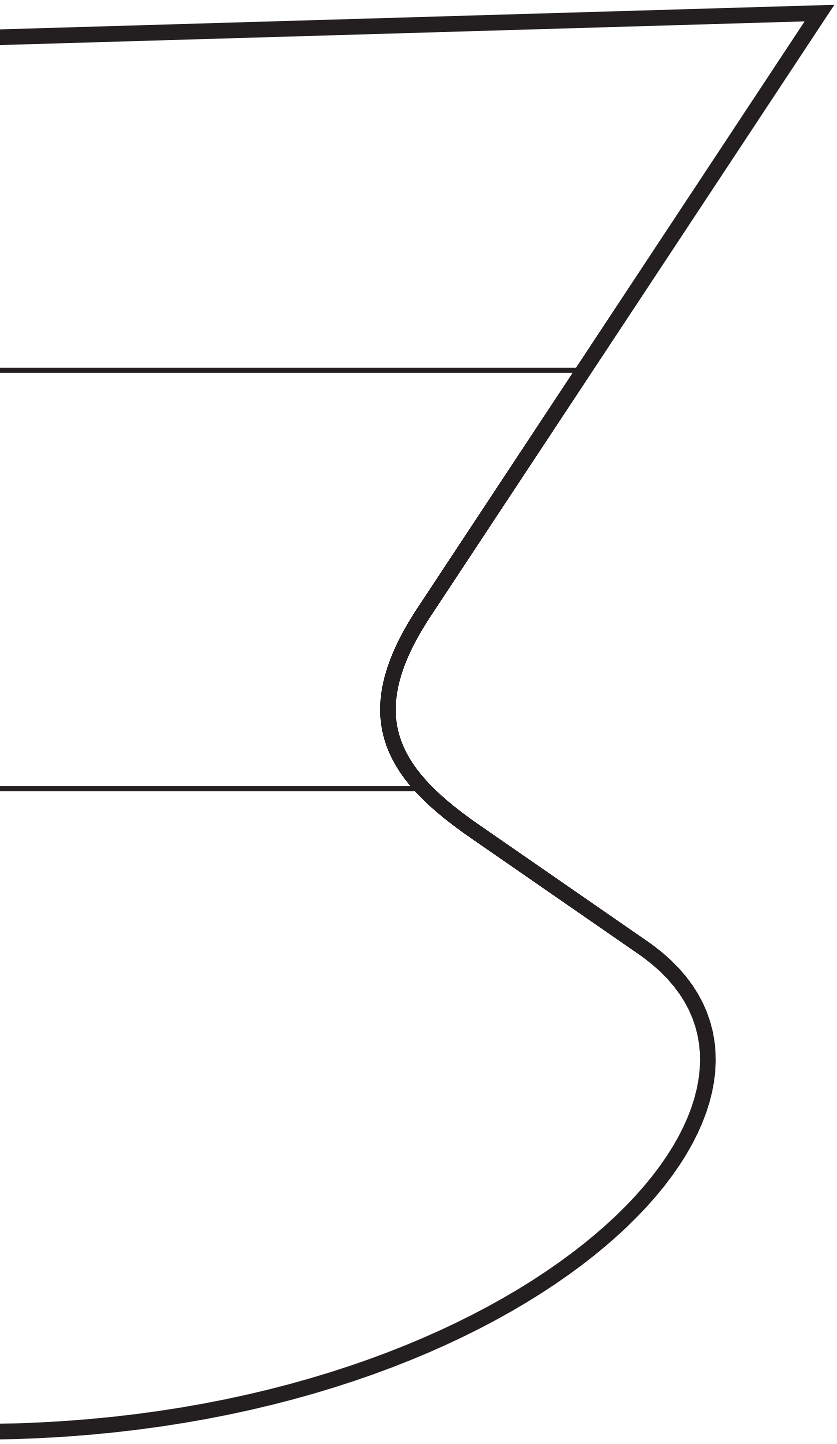
Rules and Regulations for the Classification of Ships, July 2005

Notice No. 1



Effective Date of Latest Amendments:

See page 1

Issue date: January 2006

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RULES AND REGULATIONS FOR THE CLASSIFICATION OF SHIPS, *July 2005*

Notice No. 1

This Notice contains amendments within the following Sections of the *Rules and Regulations for the Classification of Ships, July 2005.* The amendments are effective on the dates shown:

Part	***Chapter***	***Section***	***Effective date***
1	**2**	**2, 3**	**Corrigenda**
1	**2**	**2, 5, 6**	**1 July 2005**
1	**3**	**4**	**Corrigenda**
3	**1**	**5**	**Corrigendum**
3	**2**	**3**	**Corrigendum**
3	**10**	**5**	**Corrigendum**
3	**13**	**2, 7**	**Corrigenda**
3	**13**	**7. 9**	**1 July 2005**
4	**1**	**1**	**Corrigendum**
4	**3**	**1**	**Corrigendum**
4	**5**	**1**	**Corrigendum**
4	**7**	**1**	**Corrigendum**
4	**9**	**1, 11**	**Corrigenda**
4	**11**	**1**	**Corrigendum**
4	**12**	**1**	**Corrigenda**
5	**6**	**3**	**Corrigendum**
6	**1**	**2, 6**	**Corrigenda**

It will be noted that the amendments also include corrigenda, which are effective from the date of this Notice.

The *Rules and Regulations for the Classification of Ships, July 2005* are to be read in conjunction with this Notice No. 1. The status of the Rules is now:

Rules for Ships	Effective date:	July 2005
Notice No. 1	Effective dates:	1 July 2005 & Corrigenda

Part 1, Chapter 2
Classification Regulations

CORRIGENDUM

■ *Section 2*
Character of classification and class notations

2.1 Definitions

(Part only shown)
2.1.8 **ShipRight notation**. A notation indicating that one or more of LR's ShipRight procedures have been satisfactorily followed. Class notations or descriptive notes will be assigned according to whether the ShipRight procedures are applied on a mandatory or voluntary basis, i.e.:

(a) The procedures relating to the design and construction of the hull are mandatory for the classification of large and structurally complex ships. In such cases, the associated ShipRight notation is assigned as a class notation and will appear in column 4 of the *Register Book*, *see* ~~2.3.14~~ 2.3.15. When these procedures are applied on a voluntary basis, then the associated ShipRight notation is assigned as a descriptive note and will appear in column 6 of the *Register Book*, *see* 2.7.

(Effective date 1 July 2005)

2.4 Class notations (machinery)

2.4.1 The following class notations are associated with the machinery construction and arrangement, and may be assigned as considered appropriate by the Committee:

✠ LMC	This notation will be assigned when the propelling and essential auxiliary machinery have been constructed, installed and tested under LR's Special Survey and in accordance with LR's Rules and Regulations.
$\overline{\text{✠}}$ **LMC**	This notation will be assigned when the propelling and essential auxiliary machinery have been constructed under the survey of a recognized authority in accordance with the Rules and Regulations equivalent to those of LR. In addition, the whole of the machinery will be required to have been installed and tested under LR's Special Survey in accordance with LR's Rules and Regulations.
[✠] LMC	This notation will be assigned when the propelling arrangements, steering systems, pressure vessels and the electrical equipment for essential systems have been constructed, installed and tested under LR's Special Survey and are in accordance with LR's Rules and Regulations. Other items of machinery for propulsion and electrical power generation including propulsion gearing arrangements and other auxiliary machinery for essential services that are in compliance with LR Rules and supplied with the manufacturer's certificate will be acceptable under this notation. The system arrangements of propelling and essential auxiliary machinery are required to be appraised by LR, and found to be acceptable to LR. *See* 2.8.2.
LMC	This notation (without ✠) will be assigned when the propelling and essential auxiliary machinery have neither been constructed nor installed under LR's Special Survey but the existing machinery, its installation and arrangement, have been tested and found to be acceptable to LR. This notation is assigned to existing ships in service accepted or transferring into LR class.
MCH	This notation will be assigned when the propelling and essential auxiliary machinery has been installed and tested under LR's survey requirements and found to be acceptable to LR. Items of machinery and equipment for propelling and auxiliary machinery for essential services supplied with the manufacturer's certificate will be acceptable under this class notation. The system arrangements of propelling and essential auxiliary machinery are required to be appraised by LR, and found to be acceptable to LR. *See* 2.8.3.
IGS	This notation will be assigned when a ship intended for the carriage of oil in bulk, or for the carriage of liquid chemicals in bulk, is fitted with an approved system for producing gas for inerting the cargo tanks.
PMR	This notation will be assigned where the main propulsion systems are arranged such that, in the event of a single failure in equipment, the ship will retain not less than 50 per cent of the installed prime mover capacity and not less than 50 per cent of the installed propulsion systems. It also denotes that the installation has been arranged, installed and tested in accordance with LR Rules.
PMR*	This notation will be assigned where the main propulsion systems are arranged such that, in the event of a single failure in equipment, the ship will retain not less than 50 per cent of the installed prime mover capacity and not less than 50 per cent of the installed propulsion systems and where the machinery is installed in separate compartments such that, in the event of the loss of one compartment, the ship will retain availability of propulsion power. It also denotes that the installation has been arranged, installed and tested in accordance with LR Rules.

SMR	This notation will be assigned where the steering systems for manoeuvring are arranged so that steering capability will continue to be available in the event of a single failure in the steering gear equipment or loss of power supply or control system for any steering system. It also denotes that the installation has been arranged, installed and tested in accordance with LR Rules.
SMR*	This notation will be assigned where the steering systems for manoeuvring are arranged so that steering capability will continue to be available in the event of a single failure in the steering gear equipment or loss of power supply or control system for any steering system and where the steering systems are installed in separate compartments such that, in the event of the loss of one compartment, steering capability will continue to be available. It also denotes that the installation has been arranged, installed and tested in accordance with LR Rules.
PSMR	This notation will be assigned where the main propulsion and steering systems are configured such that, in the event of a single failure in equipment, the ship will retain not less than 50 per cent of the installed prime mover capacity and not less than 50 per cent of the installed propulsion systems and retain steering capability. It also denotes that the installation has been arranged, installed and tested in accordance with LR Rules.
PSMR*	This notation will be assigned where the main propulsion and steering systems are configured such that, in the event of a single failure in equipment, the ship will retain not less than 50 per cent of the installed prime mover capacity and not less than 50 per cent of the installed propulsion systems and retain steering capability. The propulsion and steering arrangements are to be installed in separate compartments such that in the event of the loss of one compartment, the ship will retain availability of propulsion power and manoeuvring capability. It also denotes that the installation has been arranged, installed and tested in accordance with LR Rules.

(*Part only shown*)

2.4.2 The following class notations are associated with the machinery control and automation, and may be assigned as considered appropriate by the Committee:

IP	This notation may be assigned to a ship classed with LR when the arrangements of the machinery are such that the propulsion equipment and all the essential auxiliary machinery is integrated with the power unit for operation under all normal seagoing and manoeuvring conditions. The system is to be bridge controlled and the propulsion equipment is to incorporate an emergency means of propulsion in the event of failure in the prime mover. It also denotes that the machinery and control equipment have been arranged, installed and tested in accordance with LR's Rules.
IFP	This additional notation may be assigned where an integrated fire protection system is fitted to provide control and monitoring of all active fire protection and fixed fire extinguishing systems from a centralized fire-control station. It denotes that the integrated fire protection system has been arranged, installed and tested in accordance with LR's Rules, or is equivalent thereto.

2.4.4 The following class notations are associated with navigation safety, and may be assigned as considered appropriate by the Committee:

~~**NAV**~~	~~This notation will be assigned when a superior bridge layout and level of navigation equipment are provided. It denotes that the navigational installation has been arranged, installed and tested in accordance with LR's Rules, or is equivalent thereto.~~
NAV1	This notation will be assigned when the bridge layout and level of equipment are such that the ship is considered suitable for safe periodic operation under the supervision of a single watchkeeper on the bridge. It denotes that the navigational installation has been arranged, installed and tested in accordance with LR's Rules, or is equivalent thereto.
IBS	This additional notation will be assigned where an integrated bridge system is fitted to provide electronic chart display, track planning and automatic track following, centralized navigation information display, and bridge alarm management. It denotes that the integrated bridge system has been arranged, installed and tested in accordance with LR's Rules, or is equivalent thereto. For assignment of this notation, the ~~ship is also to be assigned either **NAV** or **NAV1**.~~ layout of the bridge and the equipment on the bridge are to satisfy the requirements for assignment of the notation **NAV1**. Where the layout of the bridge and the equipment located on the bridge satisfy the requirements of a relevant international or national ergonomic or human centred design standard or an acceptable equivalent, compliance with the requirements of **NAV1** may be relaxed.

~~*2.4.6* The notations **✠ LMC**, **✠̅ LMC** and **LMC** (without ✠) will, in general, not be assigned to non-self-propelled vessels, but individual cases may be considered on their merits.~~

2.4.6 The notations **✠ LMC**, **✠̅ LMC**, **[✠]LMC**, **LMC** (without ✠) and **MCH** will in general not be assigned to non-propelled craft, but individual cases will be considered on their merits.

CORRIGENDUM

2.7 Descriptive notes

2.7.3 Where LR's ShipRight procedures for the following have been applied on a voluntary basis, then a descriptive note will, at the Owner's request, be entered in column 6 of the *Register Book*, preceded by the word **ShipRight** (*see also* Pt 3, Ch 16 and Pt 5, Ch 21):

ES	Enhanced Scantlings
PCWBT(date)	Protection Coatings in Water Ballast Tanks
SEA(Hss-n)	Ship Event Analysis (Hull Surveillance Systems)
SERS	Ship Emergency Response Service
SCM	Screwshaft Condition Monitoring
TCM	Main Steam Turbine Condition Monitoring
MCM	Machinery Condition Monitoring
HPMS	Hull Planned Maintenance ~~System~~ Scheme
MPMS	Machinery Planned Maintenance ~~System~~ Scheme
RCM	Reliability Centred Maintenance
BWMP	Ballast Water Management Plan

(Effective date 1 July 2005)

2.8 Application notes

2.8.1 **Propelling and essential auxiliary machinery** includes machinery, equipment and systems installed for the ship to be under seagoing conditions and that are necessary for the following:

(a) Maintaining the watertight and weathertight integrity of the hull and spaces within the hull.
(b) The safety of the ship, machinery and personnel on board.
(c) The functioning and dependability of propulsion, steering and electrical systems.
(d) The operation and functioning of control engineering systems for the monitoring and safety of propulsion and steering systems.
(e) The operation and functioning of emergency machinery and equipment.

2.8.2 **Manufacturer's certificate** for assignment of the **[✠]LMC** notation. Acceptance of the manufacturer's certificate for items of machinery for propulsion (including propulsion gearing with single input/output arrangements) and for electrical power generation and for other auxiliary machinery for essential services is subject to the following:

(a) The ship is a cargo ship of less than 500 gross tonnage or is a ship of 500 gross tonnage or greater and is not required to comply with international conventions applicable to a ship with unrestricted service.
(b) Propulsion power is provided by oil engines or gas turbines which have been type approved to LR requirements for marine application.
(c) Electrical power is provided by generators driven by oil engines or gas turbines which have been type approved to LR requirements for marine application.
(d) The design and manufacture standards for all machinery and associated systems are the applicable LR Rules.
(e) The machinery and equipment is manufactured under a recognized quality control system.
(f) Propellers, propulsion shafting and multiple input/output gearboxes are not included within the scope of propulsion arrangements for acceptance of a manufacturer's certificate.

2.8.3 **Manufacturer's certificate** for assignment of the **MCH** notation. Acceptance of the manufacturer's certificate for propelling and essential auxiliary machinery is subject to the following:

(a) The ship is a cargo ship of less than 500 gross tonnage or is a ship of 500 gross tonnage or greater and is not required to comply with the international conventions applicable to a ship with unrestricted service.
(b) Propulsion power is provided by oil engines or gas turbines which have been type approved to LR requirements for marine application.
(c) Electrical power is provided by generators driven by oil engines or gas turbines which have been type approved to LR requirements for marine application.
(d) The power of any engine or gas turbine is less than 2,250 kW and the cylinder bore or any diesel engine is not greater than 300 mm.
(e) The design and manufacture standards for machinery and associated systems are the applicable LR Rules or other marine standards acceptable to LR.
(f) The machinery and equipment is manufactured under a recognized quality control system.

CORRIGENDUM

■ *Section 3*
Surveys – General

3.5 Existing ships – Periodical Surveys

3.5.13 Ships which have satisfactorily passed a Special Survey will have a record entered in the *Register Book* indicating the date and the notation **ESP** if this is applicable (*see* ~~2.3.11~~ 2.3.12). Where the Special Survey is completed more than three months before the due date, the new record of Special Survey will be the final date of survey. In all other cases the date recorded will be the fifth anniversary.

(Effective date 1 July 2005)

■ *Section 5*
Approval/Type Testing/Quality Control System

5.1 LR Type Approval – Marine Applications

5.1.1 LR Type Approval is an impartial certification system that provides independent third-party Type Approval Certificates attesting to a product's conformity with specific standards or specifications. It is based on design review and type testing or where testing is not appropriate, a design analysis.

5.1.2 The LR Type Approval System is a process whereby a product is assessed in accordance with a specification, standard or code to check that it meets the stated requirements and through selective testing demonstrates compliance with specific performance requirements. The testing is carried out on a prototype or randomly selected product(s) which are representative of the manufactured product under approval. Thereafter, the producer is required to use Quality Control procedures and processes to ensure that each item delivered is in conformity with that which has been Type Approved.

5.1.3 The selective testing required by 5.1.2 is to include environmental testing applicable to the product's installation on board a ship classed or intended to be classed with LR.

5.1.4 LR Type Approval does not remove the requirements for inspection and survey procedures required by the Rules for equipment to be installed in ships classed or intended to be classed with LR. Also, LR Type Approval does not remove the requirement for plan appraisal of a system that incorporates Type Approved equipment where required by the Rules.

5.1.5 LR Type Approval is subject to the understanding that the producer's recommendations and instructions for the product and any relevant requirements of the Rules for the Classification of Ships are fulfilled.

5.1.6 The producer supplying equipment or components under Quality Control procedures and processes is to have a recognized quality management system certified by an IACS member or Notified Body. The Quality Control procedures and processes are to address the production of the product consistent with 5.3.

5.1.7 Where equipment or components have been Type Approved in accordance with specifications and procedures other than LR's, details of the product, certification and testing are to be submitted for consideration where appropriate.

5.2 Type testing

5.2.1 Type testing is an impartial process that provides independent third-party verification that an item of machinery or equipment has satisfactorily undergone a functional type test.

5.2.2 Type testing is carried out against defined performance and test standards for a defined period of time with test conditions varying between minimum and maximum declared design conditions.

5.2.3 Type testing is carried out on a prototype or randomly selected product(s) which are representative of the manufactured product under assessment.

5.2.4 After type testing, mechanical equipment is to be opened out and inspected for damage or excessive wear.

5.2.5 On application from the manufacturer, type tests may be waived for equipment and machinery that has been proven to be reliable in marine service and where compliance with the current applicable standards can be demonstrated. Equipment and machinery that has been previously type tested with satisfactory testing evidence and certification need not have the type tests repeated where previous testing is in accordance with current testing standards.

5.2.6 The acceptance of type testing certification is subject to the understanding that the manufacturer's recommendations and instructions for the product and any relevant requirements of the applicable Rules are fulfilled.

5.3 Quality Control System

5.3.1 A quality control system for the purposes of LR acceptance of materials and machinery refers to a scheme that covers the operational techniques and activities that is used to demonstrate that the quality requirements for a product are in accordance with declared standards.

5.3.2 The quality control system for a particular product extends to all parties involved in the supply chain from manufacture and testing through to delivery of the product.

5.3.3 LR acceptance of machinery and equipment manufactured under a quality control scheme is dependent on the scheme being maintained through a traceable process involving planned audits and spot inspections at the discretion of LR Surveyors. The purpose of the audits and spot inspections is to ensure that the procedures for manufacture and quality control are being maintained in a satisfactory manner.

5.3.4 The use of a quality control system does not remove the requirements for inspection processes that may be required by the Rules applicable to the equipment being supplied with a manufacturer's certificate. Also the use of a quality control system does not remove the requirement for plan appraisal of equipment or systems where required by the Rules.

(Effective date 1 July 2005)

■ *Section 6*
Classification of machinery with [✠] LMC or MCH notation

6.1 General

6.1.1 After delivery of machinery and equipment with the manufacturer's certificate to the shipyard, Survey at the Shipyard and Periodical Surveys are to be in accordance with the requirements for ships built or accepted into class with the ✠ **LMC** notation.

6.2 Appraisal and records

6.2.1 To facilitate survey and compilation of classification records, plans and information required for a ship being accepted into class with the ✠**LMC** notation are to be submitted for appraisal and information. Plans are not required where machinery and equipment has previously been type approved; in these cases it is only necessary to submit details of the machinery and equipment together with details of previous approval.

6.3 Survey and inspection

6.3.1 The manufacturer's certificate for acceptance of machinery and equipment for assignment of the [✠]**LMC** or **MCH** notation is to be in the English language and include the following information:

(a) Design and manufacturing standard(s) used.
(b) Materials used for construction of key components and their sources.
(c) Details of the quality control system applied during design, manufacture and testing and of any software maintenance.
(d) Details of any type approval or type testing.
(e) Details of installation and testing recommendations for the machinery or equipment.

The manufacturer is to have a recognized quality management system certified by an IACS member or a Notified Body.

6.3.2 The installation and testing of machinery and equipment at the build yard which has been supplied with a manufacturer's certificate is to be in accordance with the requirements applicable to a ship having the ✠ **LMC** notation.

Part 1, Chapter 3
Periodical Survey Regulations

CORRIGENDA

■ *Section 4*
Docking Surveys and In-water Surveys – Hull and machinery requirements

4.3 In-water Surveys

4.3.1 The Committee will accept an In-water Survey in lieu of the intermediate docking between Special Surveys required in a five year period on ships other than those covered in 4.1.2 and where an ***IWS** notation is assigned, *see* Ch 2,~~2.3.10~~ 2.3.11.

4.3.2 The Committee may accept an In-water Survey in lieu of the intermediate docking between Special Surveys required in a five year period on ships where suitable protection is applied to the underwater portion of the hull. If requested, an ***IWS** notation may be assigned on satisfactory completion of the Survey, provided that the applicable requirements of LR's Rules and Regulations are complied with, *see also* Ch 2,~~2.3.10~~ 2.3.11.

Part 3, Chapter 1
General

CORRIGENDUM

■ *Section 5*
Information required

5.2 Plans and supporting calculations

5.2.4 Where an ***IWS** (In-water Survey) notation is to be assigned (*see* Pt 1, Ch 2,~~2.3.10~~ 2.3.11), plans and information covering the following items are to be submitted:

- Details showing how rudder pintle and bush clearances are to be measured and how the security of the pintles in their sockets are to be verified with the vessel afloat.
- Details showing how stern bush clearances are to be measured with the vessel afloat.
- Details of high resistant paint, for information only.

Part 3, Chapter 2
Materials

CORRIGENDUM

■ *Section 3*
Corrosion protection

3.5 External hull protection

3.5.4 Where an ***IWS** (In-water Survey) notation is to be assigned, *see* Pt 1, Ch 2,~~2.3.10~~ 2.3.11, protection of the underwater portion of the hull is to be provided by means of a suitable high resistant paint applied in accordance with the manufacturer’s requirements. Details of the high resistant paint are to be submitted for information.

Part 3, Chapter 10
Welding and Structural Details

CORRIGENDUM

■ *Section 5*
Structural details

5.6 Bilge keels and ground bars

5.6.4 The material class, grade and quality of the ground bar are to be in accordance with Table 2.2.1, Note ~~10~~ 11 in Chapter 2.

Part 3, Chapter 13
Ship Control Systems

CORRIGENDA

■ *Section 2*
Rudders

2.8 Pintles

2.8.5 Where an ***IWS** (In-water Survey) notation is to be assigned (*see* Pt 1, Ch 2,~~2.3.10~~ 2.3.11), means are to be provided for ascertaining the rudder pintle and bush clearances and for verifying the security of the pintles in their sockets with the vessel afloat.

■ *Section 7*
Equipment

7.1 General

7.1.2 For ships intended to be operated only in suitable areas or conditions which have been agreed by the Committee, as defined in Pt 1, Ch 2,~~2.3.5~~ 2.3.6 to ~~2.3.9~~ 2.3.10, equipment differing from these requirements may be approved if considered suitable for the particular service on which the ship is to be engaged, *see also* Table 13.7.1.

Table 13.7.1 Equipment requirements (*see continuation*) (*Part only shown*)

Ship type	Service	Required equipment
Cargo ships, bulk carriers, tankers, ferries, dredgers, etc.	Unrestricted service	(1) *See* Tables 13.7.2 and 13.7.3, using N_C
Ferries	Certain restricted services, *see* Pt 1, Ch 2,~~2.3.8~~ 2.3.9	(2) *See* Tables 13.7.2 and 13.7.3, using N_C and N_A as appropriate Mass of bower anchor Chain cable length and diameter } N_A = one grade below N_C Stream anchor may be omitted
Dredging and reclamation craft	Extended protected waters service, *see* Pt 1, Ch 2,~~2.3.6~~ 2.3.7	(3) *See* Tables 13.7.2 and 13.7.3, using N_C and N_A as appropriate N_A = N_C reduced by two grades, except for stream anchors, or mooring lines Stream anchor – not required if ship fitted with positioning spuds
	Protected waters service, *see* Pt 1, Ch 2,~~2.3.5~~ 2.3.6	(4) *See* Tables 13.7.2 and 13.7.3 using N_C and N_A as appropriate Mass of bower anchor Chain cable diameter } N_A = 0,5N_C Bower anchors { powered ships – two anchors unpowered (manned) ships – one anchor Chain cable length – greater of 2L m or 10,0T_D m, but need not exceed requirements for an ordinary cargo ship with anchors of the same mass Mooring lines – as required for N_C Wire ropes – may be substituted for chain cable on bower anchors if breaking strength ≥1,5 times that of the chain cable. To consist of six strands of a ‘parallel lay’ construction on independent wire rope core (‘cross lay’ strands over fibre core not acceptable)

Table 13.7.1 **Equipment requirements** (*conclusion*) (*Part only shown*)

Ship type	Service	Required equipment
Tugs	Unrestricted and restricted service	(6) *See* Table 13.7.2 using N_C except as stated below Stream anchor – not required Towlines – adequate for tug's maximum bollard pull with factor of safety $\geq 2,0$
	Service restricted, *see* Pt 1, Ch 2,~~2.3.6~~ 2.3.7 to ~~2.3.9~~ 2.3.10	(7) *See* Table 13.7.2 using N_C Mass of bower anchor Chain cable diameter reduced to correspond to two Equipment Letters below that required for N_C
	Protected waters service, *see* Pt 1, Ch 2,~~2.3.5~~ 2.3.6	(8) *See* Table 13.7.2 using N_A Mass of bower anchor Chain cable diameter $N_A = 0,5N_C$ Chain cable length = 0,5 times length required by N_A Where $N_C < 90$, the requirements for anchors and chain cable will be specially considered
Manned barges and pontoons	Service restricted, *see* Pt 1, Ch 2,~~2.3.6~~ 2.3.7 to ~~2.3.9~~ 2.3.10	(10) As item (3) in this Table
Unmanned barges and pontoons	Unrestricted service, or service restricted, *see* Pt 1, Ch 2,~~2.3.6~~ 2.3.7 to ~~2.3.9~~ 2.3.10	(11) *See* Tables 13.7.2 and 13.7.3, using N_C and N_A as appropriate Anchors $L < 30$ m, no anchor need be carried $L \geq 30$ m, one anchor to be fitted Anchor cable length – greater of 40 m or $2L$ m (a) Unrestricted service: mass of anchors and chain cable diameters as for N_C (b) Protected water service, *see* Pt 1, Ch 2,~~2.3.5~~ 2.3.6: mass of anchors and chain cable diameters, $N_A = 0,5N_C$ (c) Service restriction, *see* Pt 1, Ch 2,~~2.3.6~~ 2.3.7 to ~~2.3.9~~ 2.3.10: mass of anchor and chain cable diameter, N_A reduced to correspond to two Equipment Letters below N_C

(Effective date 1 July 2005)

7.5 Towlines and mooring lines

7.5.6 Means are to be provided to enable mooring lines to be adequately secured on board ship. It is recommended that the total number of suitably placed bollards on either side of the ship and/or the total brake holding power of mooring winches should be capable of holding not less than 1,5 times the sum of the maximum breaking strengths of the mooring lines required or recommended. Attention is drawn to the existence of a number of National Standards for bollards and fairleads, and to the importance of ensuring that their seating arrangements, including the supporting hull structure, are efficiently constructed and adequate for the intended loads. Mooring winches should be fitted with drum brakes, the strength of which is sufficient to prevent unreeling of the mooring line when the rope tension is equal to 80 per cent of the breaking strength of the rope as fitted on the first layer on the winch drum.

7.8 Structural requirements ~~associated with windlasses~~

~~7.10 Structural requirements associated with towing and mooring~~

~~*7.10.1* These requirements are applicable to bollards and bitts, fairleads, stand rollers and chocks used for the normal mooring, towing and emergency towing of the vessel, their supporting structure, and the attachments to it. They are also applicable to the supporting structure of capstans, winches and similar items used for the mooring, towing or emergency towing of the vessel.~~

~~*7.10.2* Shipboard fittings are to be provided, at the bow, stern and both sides of the ship, to enable mooring lines and towlines to be adequately secured on board. Shipboard fittings are not to be attached directly to gutter bars or sheer strake upstands.~~

~~*7.10.3* Shipboard fittings for towing or mooring are to be fitted to the deck or bulwark structure. If fitted on deck they are to be located on longitudinals, beams and/or girders, which are part of the deck construction so as to facilitate efficient distribution of the towing load. Other equivalent arrangements will be specially considered.~~

~~*7.10.4* The design load to be applied to a shipboard fitting which is to be used for mooring purposes is to be twice the maximum breaking strength of the mooring line anticipated to be used throughout the service life of the ship. If the shipboard fitting is also to be used in relation to towing then the greater of this load and the load defined in 7.10.5 is to be used.~~

~~*7.10.5* The design load to be applied to a shipboard fitting which is to be used for towing purposes is to be the greater of:~~

- ~~twice the maximum breaking strength of the towline anticipated to be used throughout the service life of the ship; or~~
- ~~twice the breaking strength of the towline given in Table 13.7.3 for the ship's corresponding equipment number.~~

~~*7.10.6* The selection of shipboard fittings is to be made by the shipyard in accordance with an acceptable Industry standard (e.g. ISO3913 Shipbuilding Welded Steel Bollards), taking into account the strength of the mooring line to be used, *see* Table 13.7.3. If the shipboard fitting is not selected from an acceptable Industry standard then the design load used to assess its strength and its attachment to the ship is to be in accordance with 7.10.4 or 7.10.5, whichever is applicable.~~

~~*7.10.7* Arrangement of the structural reinforcement beneath shipboard fittings is to consider any variation of the direction, in both the lateral and vertical plane, of the load to which it may be subjected during towing or mooring operations. For ships equipped with emergency towing arrangements in accordance with IMO Resolution MSC 35(63), as may be amended, the required angles of load action are specified therein. The point of action of the force is to be taken as the point of attachment of the mooring line or towline. This can generally be taken as the first load bearing point of contact between the line and shipboard fitting.~~

~~*7.10.8* The stress within the structural reinforcement is not to exceed the values given in Table 13.7.8. Abrupt changes of shape or section, sharp corners and other points of stress concentration within the structure are to be avoided.~~

~~*7.10.9* The Safe Working Load (SWL) of the shipboard fitting is not to be greater than one half of the design load defined in 7.10.5. This applies for a single post utilising only one turn of one line.~~

~~*7.10.10* The SWL of each shipboard fitting is to be marked, by weld bead or equivalent, on the fitting and is to be recorded, along with its intended use, in the towing and arrangement plan, or other information on board, for the guidance of the Master. The information is to explicitly prohibit the use of mooring lines and towlines outside of their intended function.~~

~~Table 13.7.8 Allowable stresses within the~~ supporting structure of shipboard fittings

	Bending stress, in N/mm^2	Shear stress, in N/mm^2
Allowable stress	$\frac{235}{k}$	$\frac{141}{k}$

where

$k = \frac{235}{\sigma_0}$

σ_0 = specified minimum yield strength of the material in N/mm^2

■ *Section 9*
Emergency towing arrangements

9.1 Structural requirements

9.1.1 For ships equipped with emergency towing arrangements in accordance with IMO Resolution MSC 35(63), ~~as may be amended,~~ the deck and its supporting structure in way of strongpoints and fairleads ~~is to comply with the requirements of 7.10.~~ are to be suitably reinforced to resist design loads of at least 1,3 x specified breaking strength of the weakest component of the emergency towing arrangement, for angles of tow as specified in IMO Resolution MSC 35(63). The deck in way of strongpoints and fairleads is to have a minimum thickness of 15 mm.

9.1.2 Where a ship is provided with an emergency towing arrangement and the supporting structure complies with the requirements of this Section ~~7.10~~, the ship will be eligible to be assigned the descriptive note **ETA** which will be entered in column 6 of the *Register Book*.

9.1.3 Stresses induced in the supporting structure and welds in way of strongpoints and fairleads, determined using the design loads from 9.1.1, are not to exceed the permissible values given in Table 13.9.1. The capability of the structure to withstand buckling is also to be assessed.

Table 13.9.1 Permissible stress values

	Permissible stress N/mm^2 (kgf/mm^2)
Direct stress	σ_o
Shear stress	$\frac{\sigma_o}{\sqrt{3}}$
Combined stress	σ_o
Symbols	
σ_o = specified minimum yield stress, in N/mm^2 (kgf/mm^2)	

9.1.4 The structural arrangement is to be such that continuity will be ensured. Abrupt changes of shape or section, sharp corners and other points of stress concentration are to be avoided.

9.2 Chafing chain and wire or fibre rope for Emergency Towing Arrangements

9.2.3 The chafing chain is to be able to withstand a breaking load not less than twice the safe working load (SWL). The nominal diameter of common link for chafing chains is to comply with the value indicated in Table ~~13.9.1~~ 13.9.2.

Table ~~13.9.1~~ 13.9.2 Nominal diameter of common link for chafing chains for ETA

Type of ETA	Nominal diameter of common link, *d* min	
	Grade U2	Grade U3
ETA 1000	62 mm	52 mm
ETA 2000	90 mm	76 mm

Part 4, Chapter 1

General Cargo Ships

CORRIGENDUM

■ *Section 1* General

1.3 Class notations

1.3.3 Ships intended to be operated only in suitable areas or conditions which have been agreed by the Committee, as defined in Pt 1, Ch 2,~~2.3.5~~ 2.3.6 to ~~2.3.9~~ 2.3.10, will receive individual consideration on the basis of the Rules with respect to the environmental conditions agreed for the design basis and approval.

Part 4, Chapter 3

Tugs

CORRIGENDUM

■ *Section 1* General

1.2 Class notations

1.2.4 Tugs intended to be operated only in suitable areas or conditions which have been agreed by the Committee, as defined in Pt 1, Ch 2,~~2.3.5~~ 2.3.6 to ~~2.3.9~~ 2.3.10, will receive individual consideration on the basis of the Rules with respect to the environmental conditions agreed for the design basis and approval. In particular, tugs complying with the requirements of this Chapter and Pt 3, Ch 13,7 for the relevant reduced equipment requirements, will be eligible to be classed:

- **A1 tug protected waters service**; or
- **A1 escort tug protected waters service**; or
- **A1 escort tug (F,B,V,C) protected waters service**, (*see* Pt 1, Ch 2,~~2.3.5~~ 2.3.6); or
- **100A1 tug with service restriction notation**; or
- **100A1 escort tug with service restriction notation**; or
- **100A1 escort tug (F,B,V,C) with service restriction notation**;

whichever is applicable.

Part 4, Chapter 5

Barges and Pontoons

CORRIGENDUM

■ *Section 1*
General

1.2 Class notations

1.2.2 Barges and pontoons intended to be operated only in suitable areas or conditions which have been agreed by the Committee, as defined in Pt 1, Ch 2,~~2.3.5~~ 2.3.6 to ~~2.3.9~~ 2.3.10, will receive individual consideration on the basis of the Rules with respect to the environmental conditions agreed for the design basis and approval. In particular, shipborne barges as defined in 1.1.1(d) complying with the requirements of this Chapter will be eligible to be classed **100A1 shipborne barge extended protected water service**.

Part 4, Chapter 7

Bulk Carriers

CORRIGENDUM

■ *Section 1*
General

1.3 General class notations

1.3.2 Class notations applicable to all bulk carriers are defined as follows:

- **Strengthened for heavy cargoes**
  For bulk carriers with scantlings complying with 8.2;
- **ESP**
  Identifies the ship as being subject to an Enhanced Survey Programme as detailed in Pt 1, Ch 3,3 and Ch 3,6, *see also* Pt 1, Ch 2,~~2.3.11~~ 2.3.12;
- **ESN**
  Identifies the ship as having been assessed for enhanced survivability with respect to flooding, Scantlings and arrangements are to comply with 3.1.2, 8.8 and 10.4.

Part 4, Chapter 9

Double Hull Oil Tankers

CORRIGENDA

■ *Section 1*
General

1.4 Class notation

1.4.2 The notation **ESP** serves to identify the ship as being subject to an Enhanced Survey Programme as detailed in Pt 1, Ch 3,3 and Ch 3,6, *see also* Pt 1, Ch 2,~~2.3.11~~ 2.3.12.

■ *Section 11*
Ships for alternate carriage of oil cargo and dry bulk cargo

11.2 Class notations

11.2.2 The notation **ESP** serves to identify the ship as being subject to an Enhanced Survey Programme as detailed in Pt 1, Ch 3,3 and Ch 3,6, *see also* Pt 1, Ch 2,~~2.3.11~~ 2.3.12.

Part 4, Chapter 11

Ore Carriers

CORRIGENDUM

■ *Section 1*
General

1.3 Class notation

1.3.2 The notation **ESP** serves to identify the ship as being subject to an Enhanced Survey Programme as detailed in Pt 1, Ch 3,3 and Ch 3,6, *see also* Pt 1, Ch 2,~~2.3.11~~ 2.3.12.

Part 4, Chapter 12

Dredging and Reclamation Craft

CORRIGENDA

■ *Section 1*
General

1.3 Class notations

1.3.3 Ships intended to be operated only in suitable areas or conditions which have been agreed by the Committee, as defined in Pt 1, Ch 2,~~2.3.5~~ 2.3.6, ~~2.3.6~~ 2.3.7, ~~2.3.7~~ 2.3.8 and ~~2.3.9~~ 2.3.10, will receive individual consideration on the basis of the Rules with respect to the environmental conditions agreed for the design basis and approval. In particular, dredgers complying with the requirements of this Chapter, and Pt 3, Ch 13,7 for the reduced equipment requirements, will be eligible to be classed:

A1 dredger protected waters service, *see* Pt 1, Ch 2,~~2.3.5~~ 2.3.6, or

100A1 dredger with service restriction notation, whichever is applicable. Hopper dredgers, split hopper dredgers, reclamation craft, hopper barges and split hopper barges would be considered similarly.

Part 5, Chapter 6

Main Propulsion Shafting

CORRIGENDUM

■ *Section 3*
Design

3.12 Sternbushes

3.12.9 Where an ***IWS** (In-water Survey) notation is to be assigned, *see* Pt 1, Ch 2,~~2.3.10~~ 2.3.11, means are to be provided for ascertaining the clearance in the sternbush with the vessel afloat.

Part 6, Chapter 1

Control Engineering Systems

CORRIGENDA

■ *Section 2*
Essential features for control, alarm and safety systems

2.12 Programmable electronic systems – Additional requirements for integrated systems

2.12.7 Where information is required by the Rules or by National Administration requirements to be continuously displayed, the system configuration is to be such that the information may be viewed without manual intervention, e.g. the selection of a particular screen page or mode of operation. *See also* ~~2.9.18~~ 2.9.19 to 2.9.20.

■ *Section 6*
Integrated computer control – ICC notation

6.3 Operator stations

6.3.1 Each operator station allowing control of equipment is to be provided with a minimum of two multi-function display and control units. The number of units is to be sufficient to allow simultaneous access to control and monitoring functions required by 6.2.2 to 6.2.4. *See also* ~~2.9.18~~ 2.9.19 to 2.9.20.

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